

9/25/17

"Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time." -Thomas Edison

HW: Finish "Simplifying Radicals" w/s

AIM: How do we simplify radicals?

Warm Up:

Let's create a list of perfect squares.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100
 1^2 2^2 3^2 4^2 5^2 6^2 121
144
169

When simplifying radicals it is very important to pay attention to the index of the radical.

A radical is in simplest form when:

index $\sqrt{\text{Radicand}}$

$$\sqrt[3]{225}$$

1. The radicand (the quantity under the radical) has no factors that have a power greater than the index.
2. No fractions are underneath the radical.
3. No radicals are in the denominator.

ex: $\sqrt[2]{49} = \sqrt{49} = 7$

ORAL EXERCISES

State the two square roots of each number.

1. 25

5 and -5

2. 4

± 2

3. 9

± 3

4. 64

± 8

5. 100

± 10

6. 36

± 6

State the principal square root.

7. 25

5

8. 49

7

9. $\frac{1}{4}$

$\frac{1}{2}$

10. $\frac{1}{81}$

$\frac{1}{9}$

11. $\frac{1}{100}$

$\frac{1}{10}$

12. $\frac{16}{25}$

$\frac{4}{5}$

Find the indicated square root.

13. $\sqrt{100}$

10

14. $-\sqrt{49}$

-7

15. $-\sqrt{36}$

-6

16. $\sqrt{121}$

11

17. $\sqrt{\frac{1}{16}}$

$\frac{1}{4}$

18. $-\sqrt{\frac{25}{36}}$

$-\frac{5}{6}$

$\sqrt{\quad}$ \Rightarrow Principal root (Positive only)

$-\sqrt{\quad}$ \Rightarrow Negative root (negative only)

$\pm\sqrt{\quad}$ \Rightarrow Both (Positive and negative)

True or false?

19. 20 is a perfect square. *False*

20. 100 is a perfect square. *True*

21. $\sqrt{(-3)^2} = -3$ *False*

22. In $\sqrt{64}$ the radicand is 64. *True*

23. $\sqrt{49}$ indicates only one square root of 49. *True*

24. 0 has no square root. *False*

$$\sqrt{0} = 0$$

$$2. \sqrt{625} = 25$$

Try calculator

$$4. -\sqrt{484}$$

-22

$$6. \sqrt{441}$$

21

$$8. -\sqrt{400}$$

-20

$$10. -\sqrt{2025} = -45$$

$$12. \sqrt{2401} = 49$$

$$14. \sqrt{1024} = 32$$

$$16. -\sqrt{3600} = -60$$

$$18. -\sqrt{529}$$

-23

$$20. \sqrt{\frac{64}{121}} = \frac{8}{11}$$

$$\sqrt{12} = \square$$

$$\sqrt{4} \sqrt{3}$$

$$2\sqrt{3}$$

$$\sqrt{18} = \square$$

$$\sqrt{9} \sqrt{2}$$

$$3\sqrt{2}$$

$$\sqrt{48} = \square$$

$$\sqrt{16} \sqrt{3}$$

$$4\sqrt{3}$$

$$\sqrt{8} = \square$$

$$\sqrt{4} \sqrt{2}$$

$$2\sqrt{2}$$

$$\sqrt{32} = \square$$

$$\sqrt{16} \sqrt{2}$$

$$4\sqrt{2}$$

$$\sqrt{75} = \square$$

$$\sqrt{25} \sqrt{3}$$

$$5\sqrt{3}$$

